



MAGAZINE

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THE I.C.I. MAGAZINE

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The *I.C.I. Magazine* is published for the interest of all who work in I.C.I., and its contents are contributed largely by people in I.C.I. It is printed at The Kynoch Press, Birmingham, and is published every month by Imperial Chemical Industries Limited, 26 Dover Street, London, W.1. The editor is glad to consider articles for publication, and payment will be made for those accepted.

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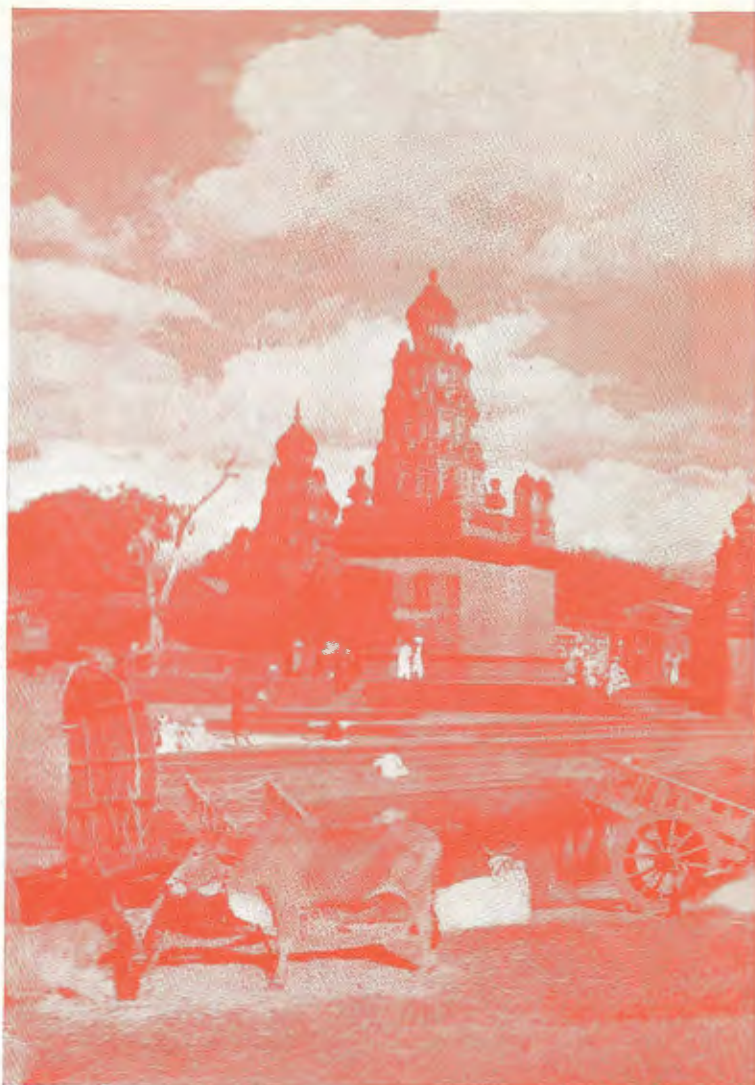
Front Cover: Seagulls at Polzeath, by Miss E. Atkins.

OUR CONTRIBUTORS

J. M. BLACKWOOD has been a member of the Agricultural Department, Southern Region, since 1934 except for the war years, when he was in the Army. Apart from bird watching his interests (he tells us) are books, conversation and cricket.

JOHN CLARK is the fourth member of his family to work for the United Alkali Company, forerunner of I.C.I. He began as an apprentice engineer with Wigg Works in 1912 and graduated to be an assistant foreman. In 1931 he took up teaching under the Liverpool Technical Education Committee, only to return ten years later to I.C.I. to organise a training scheme to provide fitters for the Ministry of Supply factories which were built and operated by General Chemicals Division. He is now the senior T.W.I. instructor of that Division.

After taking a first in chemistry at Durham University, DR. J. GORDON COOK joined Dyestuffs Division in 1939. Here he carried out research on plastics, synthetic rubber and synthetic fibres. In 1946 he joined the Publicity Department of Dyestuffs and in the following year was transferred to Head Office to administer the I.C.I. Film Unit.



I.C.I. and

The Story of the Growth of

WHEN Brunner, Mond and Co. began in 1911 to sell their soda in India through their own local organisation, they soon realised that in a country the size of all Europe without Russia there was better business to be done in a million transactions for small profit than in a smaller number of large transactions. It was therefore direct to the *dhobi*—to the man who was actually using the soda for the washing of clothes—that they addressed themselves. To this day the *dhobi* of India, Burma and Ceylon washes his clothes in the same river with the same I.C.I. soda. Thus it is that the name of I.C.I. (India) has become truly a



The head office of I.C.I. (India), at Calcutta

INDIA

a Vast Sales Organisation

household word. The yellow notice-board with the inverted crescent and the Company's initials is to be found in no fewer than 2000 places in India and Pakistan.

But this is not the whole story of I.C.I.'s contact with the village consumer. The policy of Brunner, Mond and Co. was to sell not only industrial chemicals but also the consumer goods of any reputable British firm. These outside agencies number today over sixty and are no small source of the Company's profit. Hence it is that a company whose primary sales products are industrial chemicals, fertilizers, dyes, pharmaceuticals and, to an increasing extent, paints, plastics, leather-

cloth and explosives, will also sell you, through its local distributors, sweets, crown cork tops for aerated waters, or over-issue newspapers which replace in the bazaars of India the brown-paper bag of the English shopkeeper. The hastily gummed-up paper bag of the Indian bazaar may be less hygienic than what one is accustomed to in England, but the diversity of reading material that it affords the buyer is probably unparalleled in any other part of the world.

Down to 1911 Brunner, Mond and Co. followed the then usual practice of shipping their goods to India through the intermediary of the London agents of British merchants already established in India as successors to the old East India Company. In that year they decided to open their own office in Calcutta for the purpose of holding consignment stocks at the port and keeping a watch on dealers. As is often the case with new branches, an error was made, but luckily one which was to prove of great advantage to them. They overestimated their requirement of stocks, and as they could not find storage space in Calcutta for the excess they were forced to send it out to what would nowadays be called buffer godowns



A typical street market, at Lashkar, Central India

in East Bengal, in the middle of the main alkali-consuming area.

These buffer godowns, which were rented from local Indian merchants, were the beginning of the present distribution system, of which more will be said later. The Bombay Office was opened a year later, and in 1913 Mr. Fred Brock, the managing director of Brunner, Mond and Co., signalled the importance of his visit to India by performing an act which must now for ever remain merely a dream, even to chairmen and managing directors: at Benares, holy city of the Ganges, where he visited several temples, he distributed golden sovereigns as baksheesh to the throng of beggars at the doorway of each as he left.

Brunner, Mond's direct irruption into the market was looked at somewhat askance by the older-established merchants, who



Bombay's magni



Primitive farming methods

saw them rather in the same light as the East India Company's merchants had viewed the "interlopers" of two centuries before. Nevertheless their business continued to prosper, even during the difficult times of the 1914-18 war.

With the coming of independence to India and Pakistan on 15th August, 1947, and to Burma on 4th January, 1948, I.C.I. (India) Ltd. found its territory to extend over four different countries: the two new Dominions of India and Pakistan, each with its own central government, each unfortunately estranged from the other; the republic of Burma, no longer within the British Commonwealth; and the island dominion of Ceylon.

A new rationalisation was obviously required. Therefore I.C.I.

(India) Ltd. retained as its territory only the new Dominion or, as it has since become, Republic of India; its head office remained in Calcutta and its four divisions have their headquarters in Calcutta, Bombay, Madras and Kanpur. The areas they cover are very large. The Calcutta Divisional Office, for instance, looks after I.C.I. interests in the whole of West Bengal, Assam, Bihar and Orissa, a territory almost exactly the same size as France and with nearly twice the population. And the local director at Karachi is responsible for a division which covers an area not quite the size of Spain, with a population nearly one and a half times that of Great Britain, the two parts of his

divisional area being separated by 1650 miles, farther than from London to Moscow.

Emphasis has been laid in the last few paragraphs on large cities and big divisional offices with very considerable staffs, together with their smaller but by no means insignificant district offices; but it must be repeated that the real significance of the business of both companies in the East is its intricate network of small distributors' depots. It is there, in the heart of the bazaars of the small towns and villages, that the exported products of I.C.I. are sold over the counter, and it is there that the organisation as a whole earns its widespread reputation.

At the time of his appointment the distributor is already a man of wealth, substance and reliability.



A village scene in Bengal



ificent waterfront

The acquisition of the Company's ten-foot-long yellow signboard is a public advertisement in the district of that fact. His wealth, he is entitled to hope, will increase by the connection. In the main, the distributor handles the goods of the Company on a consignment basis; he allows reasonable credit to the village people who cannot afford to pay at once. It is up to him to say how long will be the credit he allows, and to know who is safe and who not. If he is wrong, it will be he who will have to foot the bill.

In spite of his wealth and influence, the depot is no Harrods: more often than not it looks more like a smugglers' cave. Lit by an oil lamp, the ponderous and intricate



Dhobies washing by the river bank

account books, bound in red buckram, litter the top of the glass counter full of plastic combs and cheap fountain pens. Piles of bags of sulphate of ammonia and mountains of kerosene drums line the walls; and "himself" sits cross-legged on the draped wooden dais in the centre, which at night serves him as a family bed.

There is for the visitor an atmosphere of old-world courtesy about a visit to an up-country distributor's depot. Whether the visit is expected or unexpected, a friendly reception will be laid on in a short time. After the business purpose of the visit is over a table will be set up and refreshments brought; and it is not only the distributor himself and his staff whom one will meet, for in the short intervening space local worthies and other reputable merchants will have been brought in from their shops in order to have the pleasure of meeting the visitor. Although these distributors are not of the staff or on the payroll of the Company, they are the very backbone of the organisation.

Despite the enormous areas and the general propensity for black market transactions, strict discipline is maintained among the distributors. Selling prices are controlled and sales must be made to consumers only. Any sign of black market activity is severely dealt with. The general desire not to forfeit a very desirable agency, and possibly others equally desirable with it, is usually enough to maintain discipline. Supervision is carried out by Indian travellers, each of whom usually controls the activities of about thirty distributors. Each group under a traveller is regarded as a circle. Several circles may be jointly administered as a district, and the districts come directly under the divisional offices. The travellers, of course, have not only the job of supervising established distributors but also of opening up new markets, finding new direct purchasers and generally reporting to the divisional offices on local market conditions.

In India alone the population leaps up by at least ten million at every decennial census. This pressure on the land, coupled with nature's maldistribution of coal resources, leads to an enormous consumption of wood for fuel. When the wood is gone the animal manure which should go back into the soil is used in the villages to light the fires. The erosion which follows deforestation is increased in effect by the fact that the humus in the soil is not replaced.

The value of, and the proper methods of applying, chemical fertilizers under these conditions is as yet by no means well understood. It is not sufficient merely to sell the wares; the sales

drive has to be, and is, accompanied throughout these countries by advice from technical advisers on the staff of the Company on all matters of soil preparation, crop fertilization, grain storage, animal husbandry, pest control, plant protection, etc. This is particularly necessary in a country where the average loss of stored grain due to "enemy action" by insects is said to be 6% of the total, and where the effectiveness or otherwise of locust control may mean the difference between adequacy or starvation for many millions of people.

It is not only in regard to fertilizers that technical advice

is necessary in order to push sales. In Britain and other Western countries, within certain limits, many products will sell themselves: the manufacturer knows what he wants. In most countries of Asia this is not so: the salesman is required to make the market for himself. This is not always an easy task in a poor country, when the original outlay may be comparatively high, the results expected deferred for some months, and in the end vitiated by some vagary of nature.

Even in industry, a small manufacturer, competing in a severe market with poorly made local wares, requires more than simple advertisement to persuade him to buy, say, heat-treatment salts or water-softening chemicals whose use may increase the cost of his product; he needs to be taught, by example if necessary, how the higher cost of the better article will repay itself in greater sales. The seller must be constantly ready with advice to correct the mistakes and solve the problems

which may present themselves to the manufacturer in the use of the chemicals he has bought, as he himself usually employs no experts.

The Technical Service Department in the Company's Head Office and the numerous technicians in the divisional offices provide these services constantly over the whole field of the Company's activities. Tours of inspection are regularly made from all offices to possible purchasers.

Service in these Eastern countries is not without its reward. Responsibility is possibly thrust upon one earlier than it would be in Britain, and I.C.I.'s representatives in India, Pakistan, Burma and Ceylon fully realise that they, at the selling end, play an important part in Britain's struggle for recovery, no less so than those who produce the goods in the Home Divisions. This article, of course, makes no pretence of giving a comprehensive account of I.C.I. (India). It deals solely with one aspect of that company, namely the development of its unique sales organisation covering India, Pakistan, Burma and Ceylon.



An I.C.I. distributor at Delhi

Information Notes

FEATURE STORY AND ENTERPRISE

By B. W. Galvin Wright (Central Publicity Department)

OUR briefing called for one film to tell the story of I.C.I.—what it is, what it does, how it came into being, the significance and the value of its research, its employee relations, and its oversea ramifications—and for another to show what I.C.I. does with the money it earns.

The film made to the first of these two briefings is called *Feature Story*. It provided quite a headache. In the first place, it was just another industrial story; and documentary film producers have already tackled this kind of subject from a hundred and one different angles. Secondly, we had sufficient material for at least six films. To try to cover all these points in one film seemed impossible if it was not to turn out to be the most abysmally dull affair.

The answer we arrived at was to use professional actors and actresses to tell our story in a film designed to move along so smoothly and entertainingly that our audiences would be willing to listen to all the points we wished to make.

Sebastian Shaw, the radio, stage and screen actor (now in the London production *His Excellency*), plays the star role; and is supported by Margot Johns (star of *Murder at the Windmill*) and many others, including such well-known stage and film players as John Longden, John Boxer and Gus MacNaughton.

One of our troubles was to find a research story capable of being treated dramatically in a motion picture. Having decided on polythene, we came up against the difficulty of finding two people who could agree as to exactly what *did* happen at its discovery and subsequent development. However, we managed to produce a sequence which so far has satisfied most people.

The story starts off in the office of a weekly magazine of the *Picture Post* or *Illustrated* type. It was decided not to stage an editorial scene according to what the film producers thought such a scene should be—it should be based on fact. So the film personnel went and sat in on an actual editorial conference in Fleet Street. The scene as it appears in the film is therefore based upon fact—except that in the film the editor and his staff stand up, walk about or sit down like rational human beings. In real life, at the Fleet Street conference, the editor and his make-up people spent most of their time clambering around on all fours, with the sheets of their next issue spread all over the carpet. Truth is stranger than fiction!

Enterprise, the second film, went more smoothly despite the fact that our briefing was somewhat alarming—a film to explain a balance sheet. Figures are live, romantic things only to accountants, finance directors, chancellors of exchequers and similar people. To most of us they are just dull. There were terms like obsolescence, depreciation, gross takings—what uncompromising material from which to conjure twenty minutes of film to hold people's interest!

Now, if you ever have to make a film which has to inform rather than instruct you should appreciate as a cardinal point that it must not *appear* to inform. It must entertain, and get over its information while the process of entertaining is going on. We knew that first of all we must conceive a method of treatment which would enable us to put over our factual story in a visual way. So we decided to make the film in Technicolor and in the Walt Disney style of animated cartoon.

It was to be a sound film. That made us think for a while. Even if we made the visual part of the film entertaining, just imagine the effect of a voice droning on in explanation! No, we had to have a sound commentary that was entertaining in itself. What about a commentary in rhyme? Better still, a commentary in the sort of doggerel that Roger MacDougal writes.

MacDougal was tracked down—interrupted in writing a play (*To Dorothy, a Son*, now running at the Savoy Theatre)—and he produced a script which I knew was going to be either hailed as a work of genius or flung back with very rude remarks.

Actually both happened. The directors on the sub-committee of the board, who were our principals in the production of these films, are fortunately men of wit and appreciative of ideas. They saw the possibilities in the script and gave the go-ahead. But the financial wizards, as we call them in the film, were horrified to think that we could even dream of dealing with their sacred figures in such a flippant way.

It is only fair to say here that in fact the financial experts gave every assistance in making the script accurate in the information it had to get over. When the film was finally completed they were the first to admit that they had been wrong in their early judgment and have been among the loudest in singing its praises ever since.

Incidentally, did you know that every second of film time in a cartoon subject needs twenty-four separate drawings? Work that out in a film that runs for twenty-two minutes and you will have some idea of the weight of work involved in the preparation of the drawings alone.

And then came the most anxious moment of all—the preview. The films were shown privately to a select and critical audience in London, including two professional film critics, Miss Dilys Powell of the *Sunday Times* and Dr. Roger Manvel, a rota chairman of the B.B.C. Critics' Circle and the director of the British Film Academy.

Well . . . they approved: in fact were enthusiastic. And at Blackpool in November the films were shown to works councillors, who, judging from the applause, seemed to like them too. Some of them even said so.

Some Original "ENTERPRISE" CARTOONS



*Now, let us examine the brain of our Colossus.
That's where we would expect to find the bosses.*



THE POTTER AND
HIS DAUGHTER

*Aha ! The camel
Is a useful mammal.
Let us be bold,
And use our hard-earned gold
To invest in one.
Go West on one !
Into the vast unknown, undaunted,
To find some place where pots are wanted !*



*The potter was a one-man band.
I.C.I., on the other hand,
One finds
To be controlled by many minds.*

THE SCIENTIST



*Into a terrific
Scientific
Analysis,
Of all there is
To analyse,
Every size
And every shape !
Nothing must escape
The probing instruments
That research invents,
To investigate its half-formed guesses
About new materials, new drugs, new chemicals,
new processes.*

THE FOREMAN



*Which turn out the things we need
With the maximum of efficiency and speed.
Workmen by the score,
Producing more
Per man-hour
Than our
Ancestors could
Because their methods weren't so good.*

THE SHAREHOLDER



*Today I.C.I. stands on the shoulders
Of two hundred thousand shareholders,
Who, for their pains,
Expect to earn
A modest return
From the profit
Of it.*

THE MERCHANT ADVENTURER



*Thus, it is clear,
Our Ancient Potter became the pioneer
Of all the Merchant Adventurers, from ancient
Phoenicians
To the medieval Venetians.
Merchant Adventurers in vast numbers:
Marco Polo—Christopher Columbus—
Sir Walter Raleigh—Cabot—Cooke—
Names you'll find in every history book.
The enterprising !
Who set sail for a far "horizing";
Opening up new areas
For all the various
Commodities
And oddities
That made
World trade
In those far-off times
And climes.*

RAW MATERIAL SHORTAGES

By R. C. Todhunter (Purchases Controller)

NOBODY who reads the papers can fail to have had his attention drawn to the fact that the world is beset by shortages of many different kinds of raw materials. In general these shortages are, of course, caused by the fact that both in America and in Britain industrial activity is at an unprecedented level.

To discuss the position of particular raw materials in detail would require volumes, but it may be worth while to deal briefly with one or two of the materials which particularly affect I.C.I., and to describe what has been, and is being, done to reduce these shortages. There is, however, one important qualification. The raw material situation is shifting rapidly. My observations, therefore, may be out of date by the time they are in print.

Sulphur. The sulphur shortage is likely to be more serious than any other in its effects on British industry. There is no space here to go into the reasons for it in detail, but broadly it is caused by increased world demand and the desire of the United States to husband their reserves. It is not caused by American stockpiling in the normal sense of the word, and it is worth noting that America has cut domestic consumption as well as exports, so that Britain and other European countries are not bearing the whole of the burden. As a result of the cut, the production of sulphuric acid from sulphur (which represents about 60% of all British production) will be cut by one-third.

Sulphuric acid enters into the manufacture of so many materials that it is normally used as an index of industrial production. It therefore seems clear that, directly and indirectly, shortage of sulphuric acid is bound to cause some reduction in production in a number of industries.

Non-ferrous Metals. World production of most of the non-ferrous metals is insufficient to meet the present high level of world demand and the needs of the American stockpile. Both in America and in Britain copper, zinc and nickel have been rationed. In America they have also restricted the use of copper, brass and aluminium for civilian purposes, and similar restrictions are likely to follow in this country.

When the rearmament programme gets into its stride and begins to use more non-ferrous metals, consumption for other purposes will have to be cut still further. These cuts affect primarily the Metals Division and will mean reduced production of their brass, copper, and aluminium products.

Containers. Nearly all the materials from which containers are made, ranging from steel sheet to jute and paper, are in short supply. Steel sheet is short due to lack of rolling capacity, and this will not be remedied until the new Welsh strip mill comes into operation at the end of this year. Jute is short because of political complications between India and Pakistan. Paper is short because of lack of woodpulp and the general increase in demand.

As far as I.C.I. is concerned, if we cannot obtain packages in which to transport our productions we will in many cases have to reduce production. A good example of this is the Alkali Division caustic plant, which has to be shut down if there are no drums in which to pack the caustic. During the past six months we have succeeded in buying drums and sacks from Continental and American sources. So far there have

only been one or two cases of I.C.I. factories having to reduce production temporarily due to lack of containers. Unless we obtain increased supplies of drum sheet very soon this position will get rapidly more serious.

Acetone. Acetone is the principal raw material used in the manufacture of 'Perspex' and is made from isopropanol imported from America. Owing to the increased American demand for isopropanol our suppliers of acetone have been unable to get the quantities of isopropanol needed to supply the U.K. requirements of acetone, and in consequence it has been rationed. By a series of expedients the Plastics Division have not yet had to reduce production on the 'Perspex' plant, and it is hoped that these expedients will suffice until the Billingham acetone plant, using isopropanol from the Wilton cracker, comes into production this spring.

Coal. Although I.C.I. has not yet run short of coal the situation is critical, and a continuance of the early January hard weather will run our stocks down to the danger level within the next two months. The shortage is caused by production falling below the estimates and by the unexpectedly high level of consumption of electric power stations.

A return of mild weather, and such action as can be taken at this late stage to relieve the situation, may enable us to pull through this winter, but the plain fact is that we are not producing enough coal to meet our needs. Until we do, these crises will recur.

In addition to the above we are short of coke, jute, paper, cotton linters, woodpulp, woodflour, timber, plasticisers, metallic pigments, sodium, and many other materials which are bought in smaller tonnages but may be of vital importance to one or another of the Divisions.

From the purchasing angle the situation is more difficult than it has ever been, even during the war. For the last twelve months representatives from the Central Purchasing Department have scoured the Continent for supplies of scarce materials, and as a result we have been able to keep going up till now without interruptions in production. In the case of such materials as sulphur, non-ferrous metals and vegetable oils, Government controls make it impossible for us to take any action ourselves, but for all other materials and packages our efforts to find even small quantities from any reputable source still continue and impose a heavy strain on the department.

It seems likely that in two to three years' time the sulphuric acid shortage will have been relieved by the conversion of sulphur-burning plants; the cotton shortage should almost disappear by 1952 if the new American crop is as bountiful as anticipated; shortage of chemicals should also be alleviated within two or three years by the erection of new plants. Even the non-ferrous metals position might be eased by increased production brought out by the present high prices.

In general, therefore, although it is dangerous to prophesy, it might be said that the next two or three years are likely to be the worst as far as shortages are concerned, even if there is no diminution of business activity. If there is a change in the world situation and a falling off in business activity in America, there would immediately be more than enough for all, and the consequent fall in prices would probably be as steep as the recent rise.

WIDNESIAN MEMORIES

Dr. D. W. F. Hardie's book, "A History of the Chemical Industry in Widnes," has now been printed by The Kynoch Press. The foreword is written by Sir Frederick Bain, and we print it below both as an example of the literary talent of our late deputy chairman and as a well-deserved tribute to the book itself.

This book is the work of a man of letters, a scientist and a Scotsman who has become a Widnesian. He has all the qualifications for the task he has set himself, and he has produced an interesting scientific and fascinatingly human book.

My first acquaintance with Widnes and its chemical industry was during the later years of the first world war. By that time I had been seconded from my regiment to the Ministry of Munitions for work connected with chemical production. I found myself attracted by the quality of the men of Widnes with whom I worked—by their interest in and loyalty to the community they served—by their pride in the tradition of the industry and of the town—and, above all, by their determination to be worthy of their fathers by surpassing them. I was impressed not only by the leaders, the engineers, the chemists, the managers but also by the character, the capacity and the versatility of the workers. Demands were made for new, complicated and dangerous processes, and for the first time I saw the inherited knowledge and skill, the individual enterprise, loyalty and ingenuity of the Widnes chemical worker.

In April 1919 I joined the United Alkali Company. Judged from a financial and purely practical point of view the firm was not in particularly good shape, but I admired its leaders and I had trust in the men of Widnes. There were what must have seemed to others compelling attractions to go elsewhere, but I have never for an instant regretted my choice.

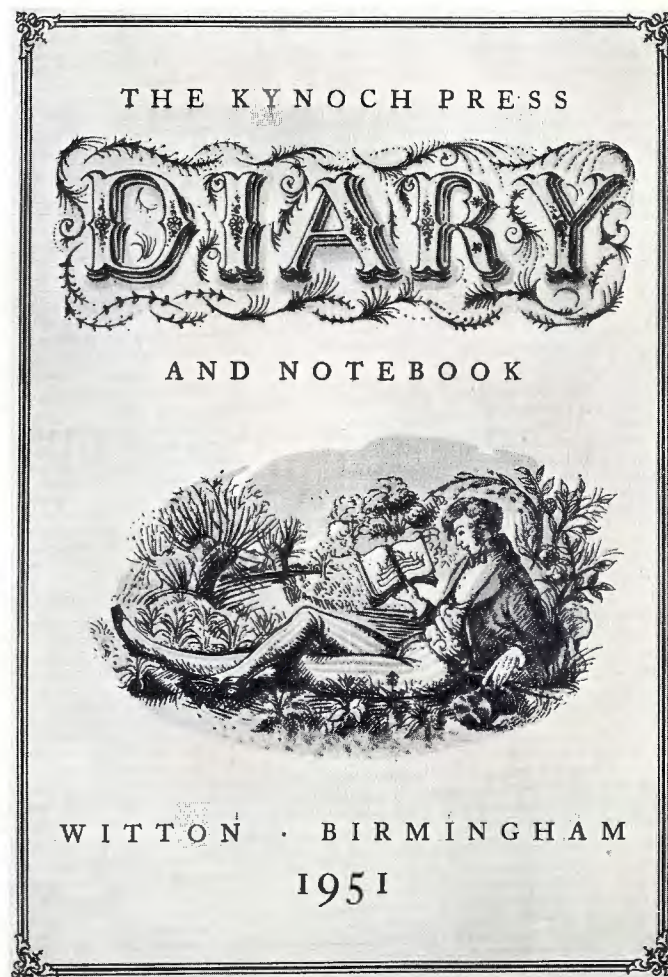
I have a vivid recollection of the last of the giants of a former generation about whom Dr. Hardie has written so vividly. On the morning when I entered the office in Cunard Building as a new member of the staff I reached the door as Mr. Max Muspratt, as he was then, was gently guiding by the arm a magnificent but blind old gentleman. He called me and introduced me to his father. Doctor E. K. Muspratt looked more like a Michelangelo prophet than the academically robed alchemist of Augustus John's great painting of him now in the University Club in Liverpool. He took my hand and said: "Young man, you are coming as I go. I shall never be here again. You are the last man I shall ever speak to in this place. I do not envy you—I have had my time—but I rejoice in the high adventure that in my dream I see coming to you and your generation." I never saw Dr. Muspratt again, but his appearance is as vivid to me now as on that April day of 1919, and his words I have quoted, the only words of his I ever heard, are blazoned on my memory.

"Your old men shall dream dreams and your young men shall see visions." The words might have been chosen by Dr. Hardie as a motto for his book. He has told a story of an industry and of a town that needed to be told. It is the story of adventure by individuals and by a community. There is no burking the truth about the conditions of work in the early days, of the wastefulness and misuse of valuable materials. Today we must think those conditions dreadful; but we must remember also that it was the constant urge to improve those conditions, the increasing pursuit of new knowledge to overcome them, that made possible the modern scientifically controlled chemical industry.

THE KYNOCH PRESS DIARY

Every year The Kynoch Press sends its regular clients a Christmas gift of the Kynoch Press Diary, and the frontispiece of the 1951 diary is reproduced below. Mr. R. B. Fishenden, who is an acknowledged authority on typography and the editor of "The Penrose Annual," contributes the following appreciation.

The Kynoch Press diaries are showpieces. They provide the typographer with an opportunity to exercise his skill in the placing of types and ornaments on the pages with more charm than is possible in the more mundane work of making catalogues. No doubt these annual gifts are made for use, but I for one regard them as collector's pieces, and they have a proud place in my library.



A pleasant arrangement of types is not, however, all that is needed in the making of a book. The type must be well printed. At Witton they have built up a fine tradition in the machine department—fine typography and careful machining make good printing.

The decorations of the diary have been designed by Elizabeth Skilton in a modern vein that will give pleasure even to those who prefer the styles of Victorian and Edwardian times. As a technician, one of whose special interests is colour reproduction, I offer congratulations for the charming way in which the colour illustrations have been treated.

There is evidence that all the members of the staff of The Kynoch Press enjoy making the diaries, and they give real pleasure to those who are fortunate enough to receive them.

Holiday Snapshots Competition – Results

THE photographic competition produced over 200 entries the quality of which was high; and Mr. Charles Wormald, of the Kynoch Press Studio, who judged the photographs, confesses that he had some difficulty in making up his mind. He considers the winning photograph to be altogether exceptional; but unfortunately the delicate tones of this picture do not lend themselves readily to reproduction by the half-tone process.

Of the several photographs commended by Mr. Wormald we can only publish a few. In selecting these we have been guided partly by considerations of the make-up of the page. Others of the commended photographs have been held over with a view to publication on the back cover of the *Magazine* as opportunity arises.

FIRST PRIZE

CHAS. P. GILMOUR
(Dyestuffs Division, Trafford Park
Works, Manchester)

"Airy-Fairy"





Second Prize

S. YARWOOD
 (Distribution Dept., Winnington)
 "Delamere Forest, near Northwich"

Third Prize

E. M. ATTWOOD
 (Jealott's Hill Agricultural Research
 Station)
 "The Olperei Glacier from Padana,
 Austrian Tyrol"





(ABOVE) *IN THE KAIZERGEBIRGE, TYROL*
by Miss N. Lewis (Central Registry, Nobel House,
London)

(LEFT) *QUISTERHAM LIGHTHOUSE—
GATEWAY TO CAEN*

by Brian Jones (I.C.I. Film Unit, Bolton House,
London)

(RIGHT)
A LATE ARRIVAL
by Chas. P. Gilmour
(Dyestuffs Division,
Trafford Park Works,
Manchester)





(ABOVE) *SOLITUDE AT PENRHYN BAY*
by S. Yarwood (Distribution Dept., Alkali Division, Winnington,
Northwich)

(RIGHT) *BEACH ACROBATICS*
by S. A. Preston (Blue Shed, T.P.M. Dept., Dyestuffs Division,
Huddersfield Works)

(BELOW) *ON THE WAY TO THE TOP OF THE FINNENHORN*
by Lucien Steens (Statistical Dept., I.C.I. (Belgium) S.A.)



EXPLORING

by Dr. J. Gordon C

The discovery of potash has me
to many people. Dr. J. Gordon C
to the men who did the job of b

It was raining when I arrived in Whitby. Outside my hotel window the statue of Captain James Cook stared damply out over the North Sea. It was not difficult to understand why my illustrious ancestor had sailed from Whitby in search of sunny Australia. Exploring these days, I decided, isn't what it used to be. Instead of continents we look for chemicals—like the potash that has been discovered in Eskdale. That is what I had come to Whitby to see.

It was still raining the next morning when I was picked up by Mr. B. T. James of Wilton Works. We slogged along for five miles or so to Sleights, a little stone-built village squatting in the Eskdale valley behind Whitby. Half a mile beyond the village we left the main road, and the car growled its way up a steep field track. Before us, in the middle of the field, was a ninety-foot steel derrick surrounded by a cluster of huts and engines and pipes.

"This is Eskdale No. 5," said Mr. James as he stopped the car outside the largest hut. "We are down more than three thousand feet here. Had a bit of trouble with a cavity, though, so we are pumping cement in."

He sounded like an over-enthusiastic dentist. I opened the car door and stepped into a sea of mud. My city slickers foundered and I settled to the ankles. We squelched towards the door of the hut. It was warm and cosy inside, with a coke stove glowing red.

"This is where we do our preliminary tests," said Mr. James. There was a wooden laboratory bench littered with simple chemical apparatus. "Take your coat off, and I'll tell you what's going on as you dry out a bit." I stood in front of the stove and steamed gently while James told me about his potash.

It began before the war, he said, when a firm of oil-well drillers started prospecting for oil in North Yorkshire. They drilled in several places but didn't find any oil. They hit a pocket of natural gas in one of the Eskdale borings. And when chemical analyses were done, small quantities of potash* were found.

To I.C.I., with Billingham Works so close by, this news was just as interesting as the discovery of an oilfield would have been. Potash is a chemical that the world must have. It is a raw material for the chemical industry. And it is one of the "big three" chemicals that are needed by all vegetables and plants for proper growth. They need nitrogen, phosphates—and potash.

Up till the 1914 war, Germany held a complete monopoly in potash production. Deep down in the earth near Stassfurt

* Potash is a loosely used term for a number of minerals of the element potassium. It is most commonly used for describing potassium carbonate, made in early days by burning wood in pots. Hence the name—"pot ash."

Eskdale No. 5 derrick, with (BELOW) a photograph of a potash-boring core

IN ESKDALE

ook (I.C.I. Film Unit)

nt a lot of hard, unromantic work
ok here introduces *Magazine* readers
ing 4000 feet down into the earth.

she had discovered rich beds of potash chemicals. And from her potash mines she supplied the farmers of the world.

During the first world war, when German supplies of potash were cut off, we searched desperately for fresh sources. At Searle's Lake, in California, America found potash; in Palestine potash was extracted from the salts of the Dead Sea. But still there was no source of potash to us in Britain.

Altogether we need something like 300,000 to 400,000 tons of potash every year in Britain. And it all has to be imported, at a cost of over £5 million a year.

The discovery of potash in the Yorkshire boreholes before the war was of real importance to the country and of particular significance to I.C.I. Across the Tees at Billingham we have a great synthetic fertilizer factory sucking nitrogen from the air to make into nitrogenous fertilizers. But the potash and phosphates needed for a balanced fertilizer have to be imported from abroad.

During the war nothing could be done to follow up the discovery. It was not until 1947 that the work of exploration could be undertaken in earnest. Since then new boreholes have been drilled and the presence of potash has been confirmed. At a conservative estimate we have enough to last a century and a half.

Mr. James picked up a piece of reddish-brown rock from the bench behind him. It was a cylinder about five inches in diameter—a core of rock that had been bored out from the depths of the earth by drills. "This is marl," he said, handing it to me. "The beds of potash lie underneath it. They are getting on for a mile underground."

He handed me a second cylinder. This time it was glossy and crystalline, with reddish specks in it. "Here is a sample of sylvite," he explained. "It's a mixture of potash with ordinary salt. A typical sample of one of the potash beds we have found."

"This came from the borehole outside?" I asked.

"No. From Eskdale No. 3, which was the first hole we drilled. And it is where we first confirmed that there really was a workable potash deposit here."

James looked outside the window. It was apparently raining harder than ever. "It's clearing up a bit," he suggested. "Come on outside and watch the drilling."

The mud had risen an inch or so, but nobody seemed to notice. Beside the derrick I was introduced to Joe Green, the Scotsman in charge of the operation. He explained what was going on.

In its essentials, drilling a mile into the ground is much the same as drilling a hole in a plank with a brace and bit. Stacked beside the derrick were huge steel pipes, each sixty feet long. I watched as the gang connected them up and lowered them smoothly and quickly into the borehole. It was like fitting up an outsize chimney-sweep's brush. At the top of the derrick a man fixed a clamp to the top of a pipe. The foreman below touched the engine controls and swung the pipe into the centre of the derrick. He lowered it gently as the gang at the bottom guided its end into the top of the previous pipe, which was sticking out of the top of the borehole and held fast in a steel vice.

A chain was twisted round the top pipe, tugged by the engine, and the pipe screwed tightly into the one underneath. Then the bottom jaws loosened their grip, and the crane lowered the drill pipe another sixty feet into the hole. Once again the top was clamped at ground level, and they started to add another section of pipe to it.

The drill team worked together as a machine. It looked too easy; as I watched, the great steel drill pipe disappeared into the hole.

"If we had been drilling," explained Joe, "we'd have had a toothed bit on the end of the pipe. And when we reach the bottom we simply turn the whole thing round and round. The bit chews into the rock, and we pump a stream of mud down the whole time."

"I had noticed the mud," I said. "I didn't realise you went out of your way to make it."

"We need it to lubricate the drill," he explained. "It goes down the inside of the drill tube and comes back between the tube and the rock wall. It brings up the powdered rock and also plugs up the rock where it's porous. Otherwise we would get water and brine seeping into the borehole."

Near by, workmen had started unloading cement near a large tank of water. I asked what they were going to do. "We are not drilling today," replied Joe. "We have struck a cavity that's got to be filled up before we can go on drilling. So we are pumping a cement mixture down. Thirty tons have gone in already. We leave it to set before we start drilling again."



SYLVITE, a mixture of potash with ordinary salt. In rich deposits the potash can readily be identified by its cloudy crystals (the clear ones are salt).



The village of Sleights, centre of boring operations, nestles in the dale a few miles inland from Whitby

I began to appreciate that drilling was not as simple as I had imagined.

"We had better be getting along now," said James, looking at his watch. "I want to show you Borehole No. 6 before lunch."

I said good-bye to Joe, and we sloshed our way back to the car.

Borehole No. 6 was on Whitby golf course, a few yards from the sea. There was no derrick, as the drilling had finished. Instead, a steel girder framework was being built over the hole. Rows of huge steel tanks stood alongside.

"We are getting ready for a big experiment here," said James. "Wilton is playing its part. We are going to pump liquids down into the hole and see whether they will fetch the potash out. If they do, it means a possible way of getting the potash without actually mining it."

Some experiment, I thought. It would be an expensive job before it was finished. Already £170,000 has been spent on the potash search—it is going to cost a lot more before the potash can be sent out to our farmers.

We left the construction men to their huge experiment and made our way to Wilton Works. Here, in a long, single-storied building, I saw the cores of rock and mineral that had been drilled out from the boreholes. Like huge multi-coloured sticks of Blackpool rock, they lay in racks stretching the length of the building. These were the final results of all the work and wealth that had gone into the search for Yorkshire's potash.

"We don't take cores all the way down," explained James. He picked up a bit of marl similar to the piece he had showed me at the hut. "Coring is a good deal slower and more expensive than ordinary drilling. So we only do it when we know from experience that we are likely to run up against something interesting. This marl, for example, is the first bit of core from Eskdale No. 3. We knew we were nearly through it when we started coring."

He picked up a section of crystalline core. "And here is our first sample of potash. We hit it at 3675 feet. As you can imagine, to us it was as exciting as finding gold." I examined

the crystalline core. Some of the crystals were cloudy and some were clear. James explained that the cloudy ones were potash and the clear ones common salt.

"Taste it," suggested James. I touched the potash with my tongue. It tasted sharp, like touching the terminals of a flash-lamp battery.

"How far does the potash deposit extend?" I asked.

"We don't know," he replied. "We have found roughly 200 million tons so far. But there is no telling how much is there altogether. It is likely that the beds spread to other parts of the Zechstein Sea region."

"That's one sea," I said, "that even Captain Cook had never heard of."

"I'm not surprised," said James; "it was a bit before his time."

He explained that the salt and potash beds that lie under northern England are thought to be the residues from a vast sea that covered a large part of Northern and Central Europe in prehistoric times. Geologists call this the Zechstein Sea. It stretched as far west as Northern Ireland.

As it dried up, the Zechstein Sea left its salts behind. Potash, being very soluble in water, would be left until the last. That is why, we believe, we find pockets of potash salts here and there associated with the enormous beds of common salt. The potash would be deposited from isolated lakes of concentrated sea water that filled the depressions of the ocean floor as the level dropped. It is one of these potash beds that has been found in Yorkshire.

We walked back to the car. I said good-bye to James and his colleagues and left them to their twentieth-century explorations.

As we drove to the station at Stockton we passed the outer edge of Wilton Works. It was late in the afternoon, and the lights twinkled from the great sheds and factories. Here, I thought, in this huge industrial city we have one of Britain's massive investments in the future. Soon there may be a new raw material flowing from the earth outside its very doorstep. Yorkshire potash.

It was still raining as I climbed into the train at Stockton.

Growing and Curing your own TOBACCO

Illustrated by Winslade



By John Clark (General Chemicals Division)

CUSTOMS and Excise allow any one person to cultivate 100 tobacco plants. At from four to six ounces of finished tobacco per plant this means 30 lb. of tobacco, or at least £75 in hard cash. As to grow 30 lb. of tobacco costs about £1 (apart from overheads), tobacco-growing is a real money-spinner for pipe smokers provided the finished product is good enough to be an enjoyable smoke—and by this I mean not only enjoyable to the producer and smoker but also tolerable to his friends.

For the ordinary person 9 lb. of tobacco should be enough. Thirty plants are sufficient to produce this, and they take up about as much space as three rows of potatoes in an ordinary allotment. Requirements are a rich, well-drained soil, as much sun as possible, a little protection against heavy winds, and a good stake to hold the plant when it is fully grown at 5 ft. high. The wind protection may be a row of peas or beans.

It is essential to get the right seed—*Nicotiana Tobacum*. It is a very small seed indeed, in fact there are something like a quarter of a million seeds to the ounce. A shilling will buy all the seed needed and to spare.

Sowing should be done about the middle of March. The procedure is as follows. Get a box, say ten inches by eight inches and at least six inches deep. Fill it with rich soil containing plenty of organic matter or humus and in fine friable condition (remembering the old adage, the smaller the seed the finer the seed-bed); mix the seed with a little balanced artificial manure like the Billingham Concentrated Compound Fertilizer, using about equal quantities of seed and fertilizer; and then sow the seed-fertilizer mixture by spreading it over the soil after the manner of a pinch of salt. Finally press down the surface of the soil firmly with a dry board and place the box in the greenhouse, or if you do not possess such a hide-out then in the living-room window (when the wife is out—and be ready to persuade her how nice it looks!). The temperature

of the greenhouse (or living-room) should be kept between 55 and 60 degrees, never less; and the soil must be kept moist.

Now comes the job of preparing the soil. What does the plant like? Well, it is a very hungry and thirsty plant, so it takes a lot out of the soil, which must therefore be rich, and it likes a protection from the wind. There is another important factor, too: What do *you* like? Strong tobacco, medium or light? These qualities are decided by the texture of the leaf. Strong pipe tobacco means thick, dark green leaves which need plenty of stable manure or compost in heavy soil if possible, plants 3 ft. apart each way. Light pipe tobacco is obtained by heavy manuring on light soil or by medium "mucking" on heavy soil, plants 2 ft. apart each way. Cigarette and the light type of tobacco is grown by using artificial fertilizer on light soil, plants 2 ft. 6 in. apart. So prepare the bed according to taste. Avoid heavy clay soils—they give the plant cold, wet feet. To some extent, however, clay can be broken up and rendered porous by mixing in basic slag.

Meanwhile the seedlings need constant attention, their chief requirements being warmth and watering. At four leaves they should be thinned. To do this you water them well, leave for an hour, then gently lift them out, and put back into the same box the number you want, nicely spaced. From then on (about the end of April) they should be gradually hardened off by slowly increasing their exposure to open air. From about early June they should be ready for transplanting. For this operation choose a damp, dull day, and water the plants thoroughly an hour before planting out. If the weather is dry, then well and truly water the soil; in strong sunshine plant only at evening.

Once established out of doors the tobacco plants should be treated like tomatoes or chrysanthemums—that is to say side shoots should be pinched out, since leaves, not flowers, are wanted. Aim to get twelve to fourteen leaves. The bottom pair will be dirtied by contact with the soil and the best leaves

(about 18 in. long) come from the centre of the plant, which will very soon be 5 ft. high. Keep the weeds down, hoe between the plants, and give further artificials according to how the plant is looking. Arrange either stakes or wires for support.

With August, flower buds as well as side shoots appear. Nip these off. Your great concern is now harvesting. Each year the harvest is at a different time. In Cheshire it is usually late August. The right moment is judged from the leaves, which when mature go a light green and become less glossy; the edges tend to curl down and are slightly sticky to touch. The lower and larger leaves mature first. Gather them as they become ready, which is better for the leaves and avoids a big rush of work. But never harvest in wet weather. Remember—wet to set, dry to gather. If the harvest is successful, each plant should yield one to one and a half pounds of green leaf. This will produce four to six ounces of tobacco.

The next operation is curing. Although there is no real difficulty here, great care is needed. The usual way is to thread each leaf through the base of the mid rib and hang them (with two or three inches between each leaf) in a well-ventilated room, attic or greenhouse. (In warm dry weather the leaves can sometimes be cured out of doors, which is really the best way.) Handle with care, as torn leaves are wasteful. It is quite a good plan, too, to collect one night and hang the next, as the night's wilting makes the leaves easier to deal with. The drying must be watched very carefully. The leaves must not dry green. If they are hardening without changing colour, allow more ventilation. They should gradually change to yellow-brown with the edges slightly yellow-green.

When the leaves are dry they are quite brittle but in our damp climate contain far too much nicotine. This excess nicotine can be got rid of by soaking the strings of dried leaves for half an hour in a bath or bucket of cold water. When the water has turned into a dirty brown liquor, gently squeeze out as much moisture as possible from the leaves and hang them up in a warm place to dry. They will dry overnight.

The final stage is the processing. First you need to get a box large enough to hold a flat leaf. Then prepare a solution of equal parts of hot water and of treacle, syrup, brown sugar or honey. (Honey is the best to my taste.) Get a small brush and sprinkle each leaf with the mixture, keeping the leaves symmetrical. Finally, cover them with a piece of board, place a weight on the top and leave them until the following night or longer.

The leaves will now be quite pliable, and with an old razor blade it is possible to cut them in half and take out the mid rib. Now stack the half-leaves in orderly piles and roll in bundles of a dozen pieces. Pack these bundles in bottling jars or old 2 lb. jam jars with a close-fitting lid or cover and place the jars in a slow oven for two hours (middle shelf). Then remove each bundle one by one and, while the leaves are still warm, gently rub in with the finger-tips a solution of two parts olive oil and one part glycerine. At the end of this, stack the pieces flat again. This operation keeps the tobacco smooth without the use of saltpetre. Finally, to add to the keeping quality, soak a small ball of cotton wool in rum, fold into a clean linen pad and with it give each half-leaf a few dabs. Again stack, wrap in muslin or linen, bind tightly with twine or weight down, and—there you are!

Open up on Christmas day with the knowledge that a year's free smoking is yours with tobacco which will grow more mellow as it matures.



For even temperature keep the seed box in the greenhouse or in the living-room window



Aim to get twelve to fourteen leaves when the plants become well established outside



Processing—a solution of hot water and treacle, syrup, brown sugar or honey



Prepare the bed suitable for your type of tobacco



At four leaves seedlings should be thinned



Thread leaves through base of mid-rib and hang up



Soaking the dried leaves removes excess nicotine



Pack rolls of leaves in jam jars and place in slow oven for two hours



A few dabs with a rum-soaked pad before final wrapping improves keeping qualities

I.C.I. NEWS



MR. JOHN ROGERS CHAIRMAN OF I.C.I.

THE new Chairman of I.C.I., Mr. John Rogers, began his career at Ardeer as a chemist engaged by Nobel's Explosives Company for research work. This was in 1899, when Harry McGowan held an important managerial position on the commercial side. The two men met in the lodgings of the chief clerk of Ardeer, and from that date began an association which has lasted over fifty years.

With each expansion in the interests of the Nobel Company Mr. Rogers has undertaken work of increasing importance. At the end of the first world war, when the merger of explosives interests ultimately called Nobel Industries Ltd. took place, he was elected to its board as Technical Director. And when in 1926 I.C.I. was formed he became a joint technical director of I.C.I., a post in which he remained until 1940, when he was appointed a deputy chairman.

During the second world war Mr. Rogers gave himself

entirely to the service of the State. In the early days of the war he was appointed Deputy Director-General of Explosives and then Director-General. Some time later he became chairman of the Ammunition Board at the Ministry of Supply. He did not return to I.C.I. until the war had entered its final stages and the ultimate victory of the Allies was beyond doubt.

He then resumed the duties of a deputy chairman of the Company; and when last month Lord McGowan intimated his wish to resign from the Board for health reasons Mr. Rogers was unanimously appointed to take his place.

Mr. Rogers lives at Chipping Campden, in Gloucestershire, where he has a cottage, and he also has a flat in London. At one time he was an enthusiastic lawn tennis player of no mean ability, but he had to give up the game after an accident. His interests include the theatre and the collecting of old silver and Chinese ivory. He was awarded the O.B.E. during the first world war.

THE CHAIRMAN'S TRIBUTE TO LORD MCGOWAN

Mr. Rogers has written for the Magazine the following tribute to Lord McGowan.

It falls to me to make a few remarks about our President, Lord McGowan. The chief reason for my undertaking this task is, of course, our long association of about fifty years, which has given me an opportunity of knowing his work, experiences and advancement as very few others do. His very early days, however, are not known to me personally, as we did not meet until in our early twenties.

He began his working life, as you are all aware, as an office boy in Nobel's Explosives Co., Glasgow, and his rapid rate of progress is obvious from the fact that at the time I first met him he held the position of deputy assistant general manager of the company. This was about 1900.

In those days from time to time he visited the Ardeer factory to deal with matters of importance, concerning which he saw and spoke only to the "high heid yins," which being translated for the benefit of our Sassenach friends means "the managers." I remember so well the interest we junior chemists took in the relations existing between Harry McGowan and our works manager, a person we held in a certain amount of awe and approached with great care in speech and behaviour. Their talks appeared to take place in the friendliest atmosphere and on a footing that seemed to us remarkable.

Later many of us discovered that talks with Harry were always in that atmosphere because it was in his nature. It happened that I knew the chief clerk at the factory very well and now and then at his dwelling met Harry McGowan in the evening of one of his visits to Ardeer. There I saw and appreciated his social qualities. It is true they did not then need to rise to the heights that later years have shown to be well within his capacity, for we sat and played penny nap, a game of which he was, and I am sure still is, very fond. Experience in those days and since has caused me to know he is a skilful player.

Now let me try to tell of his career. In this effort I cannot hope to give you more than an outline of some of the most important points as I saw them, and I must not be held to exact dates.

About 1908-10 he spent a considerable time in Canada, where Nobels had interests in the Hamilton Powder Co. At this time Nobels were on the friendliest terms with the du Pont Co. in the U.S.A., although without financial interest. He saw that in Canada commercial firms were, and would continue to be, run largely on American (U.S.A.) lines; also that the Canadian explosives concerns were not as highly efficient as they might be. So he made a merger of all the Canadian companies concerned and brought in du Pont as partners.

This in itself was a remarkable achievement. I have always felt that he was the first (on this side of the Atlantic, at least) to appreciate the conditions under which a merger is fit, proper, and of value to the community. Quite a number of so-called mergers or combinations had been brought about before, but I know of none where all concerned shared so mutually in the benefits. Combination and merging can be harmful if certain things are neglected. When the proper points are remembered and acted upon—efficiency in manufacture and service, reasonable prices to customers and (last but not least) the best possible wages and salaries to all em-

ployees—then such a merger is of value to the community. Harry McGowan understood that from the first.

When the time came in 1918 to make a merger of explosives and other industries in this country, he (Sir Harry then) employed his energies again with the same success, in conformity with the same high principles.

Then in 1924 he had another remarkable success. For some years Nobel Industries had been meeting severe competition from De Beers Explosives Company not only in South Africa but also in overseas markets. The De Beers factory was near Cape Town, while the Nobel factory was near Johannesburg. Sir Harry initiated talks with the De Beers people in London with a view to bringing both interests together. These talks in London were followed by visits to Johannesburg, where eventually the amalgamation was effected, and I was delighted to be one of the small party who assisted him in these negotiations.

Later came I.C.I.—the amalgamation of Nobel Industries Ltd., Brunner Mond, the United Alkali Company and the British Dyestuffs Corporation. This merger was Sir Harry's conception, and he founded our great Company in conjunction with the first Lord Melchett. I need hardly tell you that this has been a great success and has enabled us to take our place with the great chemical companies in America and pre-war Germany. None of us needs to apologise for or explain away our Company. We are content to accept the verdict of our shareholders, customers and fellow employees.

I could recite much more regarding Lord McGowan and his work, about the successes and honours he has won, but you all have your knowledge of him and I have said enough to show my view of his business efforts.

Let me now say something of him as a man and a friend. He is essentially a man, and a man's man; but do not let us make any mistake about that, he is no woman-hater, and like most men prefers them, as he has said, "easy on the eye." This may be why we have so many good-looking women throughout our factories and offices.

It is always interesting to try to indicate which of a man's qualities are those to which he owes success. With Lord McGowan this is particularly difficult—he has so many. He has always been hard-working, punctual, quick at noticing and securing an opportunity, insistent on thorough work, intolerant of shuffling minds and inaccuracies.

I could add to this list, but rather would I speak a little of those personal and human things that have so endeared him to us all, wherever we may work and in whatever positions. He is at home in all sorts of collections of people, whether it be a board meeting, an annual general meeting, or a meeting of employees of whatever rank. Always is he considerate and democratic.

His view is that each is important in his or her job, and the criterion is not the nature or greatness of the post but the manner in which the work is done. We all regret his retirement from responsible office but welcome his acceptance of the title Honorary President for life.

Lord McGowan, of course, would be the first to agree that he owes a great deal to Lady McGowan. It is obvious that during his long life as Chairman he could not have devoted so much attention to the affairs of the Company at its various stages unless he had been free of worries at home. Lady McGowan, by her unfailing cheerfulness, friendliness and

affectionate consideration for everyone, has both helped her husband towards his goal of great achievement and endeared herself to all and sundry.

I hope everyone will realise that Lord McGowan is in no sense an invalid. He has done what very few have the common sense to do, that is take medical advice well in advance of trouble. We have every hope and belief that our President will enjoy quite good health for many years to come.

As far as I am concerned, I have been most highly honoured by the choice of the Board to appoint me its Chairman in succession to Lord McGowan. He has set a high standard, but no less a high example to remember in times of difficulty. With such wits as I have been given and with such experience as I have acquired it shall be my utmost endeavour to succeed as far as is possible. Lord McGowan leaves me a valiant team of men and women of good will. If I fall short, the blame will not be theirs.

Dr. Fleck Appointed Deputy Chairman

Dr. Alexander Fleck, who was appointed a deputy chairman of I.C.I. on 1st January, studied chemistry at Glasgow University from 1907 to 1911. He then became an assistant in the Physical Chemistry Department of the University for two years and later served on the Glasgow and West of Scotland



Dr. Alexander Fleck

Radium Committee as a physical chemist concerned with radiological research work on cancer.

In 1917 he joined the Castner-Kellner Alkali Co. and from 1919 to 1927 was works manager of Wallsend Works. In 1931 he became managing director of General Chemicals Division and in 1937 was appointed chairman of Fertilizer and Synthetic Products Ltd. (now Billingham Division). He went to the I.C.I. Main Board in 1944 as the director responsible for Billingham and Central Agricultural Control. Wilton was

added to his responsibilities in 1946. He has been chairman of Scottish Agricultural Industries Ltd. since 1947.

Dr. Fleck's recreational interests are outdoor. He likes travelling, hill-climbing and motor yachting.

Retirement of G. E. Brine

Mr. George Brine retired from the Company at the end of the year after twenty-two years' service.

Before joining I.C.I. in 1928 he had served for over twenty years in the Royal Navy, including periods on the staffs of the First Sea Lord and Commander-in-Chief Grand Fleet.

In the Company he was first appointed to the staff of the late Lord Melchett, transferring in 1932 to the Salaries and Records Section of Head Office. Later he joined, on its formation, the Head Office and Regions Staff Department, where he worked until his retirement.

During his period with the Company he acquired a remarkable fund of knowledge, which proved of great value to the department. His pawky wit and infallible memory will be missed by all those who were in daily contact with him.

Honours for ex-I.C.I. Men

Two well-known former members of I.C.I. were created Knights Bachelor in the New Year Honours List.

Mr. Christopher Hinton, now Deputy Controller of Atomic Energy (Production) with the Ministry of Supply, joined Brunner, Mond & Co. as an engineer in 1926 and was in 1939 chief engineer and a director of Alkali Division. He was seconded to the Ministry of Supply in 1940, returned to I.C.I. in September 1945, and resigned from the Company on 31st May, 1946, to take up an appointment with the Ministry of Supply (Directorate of Atomic Energy).

Mr. Richard Lloyd-Roberts joined Brunner, Mond & Co. as Labour Manager in 1916 and was appointed Chief Labour Officer of the Company when I.C.I. was formed in 1926. He was seconded to the Ministry of Labour from January 1941 to December 1944 and awarded the C.B.E. He retired from I.C.I. in June 1948 but continued as a consultant until the end of June 1949.

ALKALI DIVISION

Mr. E. H. Austin

Mr. E. H. Austin, Deputy Chief Engineer and a Division director, has unfortunately reached the time for retirement after an aggregate of 47 years' service with the Company. He first joined Brunner, Mond & Co. as a boy on 4th June, 1901.

Mr. Austin became Deputy Chief Engineer and a Division director in 1946, and has the unique distinction, of being the only engineer, other than the Chief Engineer, to be elected to the Division board. He has served under six chief engineers.

In his young days Mr. Austin was keen on motor-cycling, camping and swimming, and later he did a great deal of work for the Northwich Council of Social Service. He also at one time taught mechanical engineering at the Verdin Technical School evening classes. The widespread appreciation of Mr. Austin's true worth and friendship has been reflected in the size of the amount subscribed to the various presentations and gifts to him. They include presentations from the Division directors, his colleagues in the Engineering Department, and his fellow members of the Winnington Hall Club.

BILLINGHAM DIVISION

Mr. J. W. Kerr

Mr. J. W. Kerr, who succeeds Mr. P. F. Pike as Billingham Division Commercial Director, assumed his new duties on 1st January.

On completing his education at Glasgow University and the Technische Hochschule, Berlin, in 1927 Mr. Kerr joined the Explosives (now Nobel) Division of I.C.I. as a chemist. Two years later he was transferred to Head Office, Millbank, where he remained until 1934.

For the next twelve years Mr. Kerr held senior appointments in the Company's sales organisation, first as assistant to the South Eastern Divisional Manager and later as Chemical Sales Manager for Scotland and Northern Ireland. He was appointed Commercial Manager at Billingham in 1946.

Girl wins First I.C.I. Science Medal

The first I.C.I. Science Medal, given by the Billingham Division for the best chemistry or metallurgy student of the year under 21 years of age, was presented to Miss Irene Richards at Constantine Technical College, Middlesbrough, on 13th December.

Miss Richards, who was a full-time student at the college and gained second-class honours in Chemistry in the London University External B.Sc. examination, is now working at Billingham in the Research Department.

The "Magazine" in Korea

At least five copies of the *Magazine* are being read on the Korean battlefield. Under the scheme for supplying free copies to employees serving in the forces, requests for the *Magazine* to be sent to them have been received from the



A fatigue party in Korea. T. H. Adams, of Billingham, is third from the left.

following Billingham boys. They are T. H. Adams, who was an off-loader in the 'Perspex' plant; E. H. Bish, a brush-hand in Services; M. C. Smart, an instrument fitter in Oil Works; and two filler-drillers in the Anhydrite Mine, W. Kuy and H. M. Jones.

DYESTUFFS DIVISION

I.C.I. (Blackley) Ladies' Choir

The I.C.I. (Blackley) Ladies' choir, in conjunction with the Dorothy Lockett Ladies' Choir, of Whitefield, took part every evening during the week starting 18th December in a show for the *Manchester Evening Chronicle's* Christmas toy appeal. Their songs were in keeping with the Christmas season, and of the group sung by the choir alone "Jubilate" and the two-part setting of "Silent Night" were outstanding. The show took place at the Gaumont Theatre, Manchester.



The Dorothy Lockett and the I.C.I. (Blackley) ladies' choirs on the stage of the Gaumont Theatre, Manchester

(By courtesy of the Evening Chronicle)

Although to the audience the show appeared to run smoothly there were occasionally moments of panic behind the scenes. On one particular night the choir were asked to sing ten minutes ahead of schedule, and when the introduction was being played only ten of the forty ladies in the choir were on the stage. The secretary, in full evening dress, ran up seemingly endless flights of stairs to the dressing-room where the other members of the choir were sitting unconcernedly waiting for the curtain call. All made a dash for the stage, arriving with just sufficient breath to sing as the curtains opened.

The choir feels very proud to have helped to bring happiness to Manchester's crippled children. Their ambitious programme for 1951 includes a visit to Wales at Easter to give a concert in Towyn. They will sing at Broughton House (the East Lancashire home for disabled soldiers, sailors and airmen) in February, and they hope to entertain the patients at Crumpsall Hospital, Manchester, later in the year.

A Swan Visitor

Grangemouth Works Labour Pool chargehand Mr. G. Russell, who travelled nearly round the world while serving in the Royal Navy, had a new experience the other day when he tackled a job more in the line of the swan-upper so often featured in the picture papers.

A flight of swans was passing over when one of the birds made a forced landing at the south end of the works. With considerable resource George Russell obtained a large piece of bread and with this as bait started a Wagnerian procession

down the main avenue, through the works gate and across to the hockey field, where the swan, having received his reward, guarded the goal for an hour before heading east in full flight for the estuary of the Forth.

The little incident, since it happened during the lunch break, created considerable interest and comment. The most intriguing of the views expressed was that the visitor was a Prince of the House of Lir come to take stock of mankind.

One version of the old Celtic tale recounts how an offended witch put a curse on the four children of King Lir, changing them into four beautiful swans. For four hundred years the swans charmed all who saw them by their grace in flight and by the beauty of their singing. When the spell ended and they resumed human form they had lost the perennial youth they retained while swans and became three tottering old men and a toothless hag. A passing saint took pity on them and changed them back into swans again.

GENERAL CHEMICALS DIVISION

Humane Society Award

Mr. W. T. Baguley (Wade Works) has recently been presented at the Northwich County Court with the Parchment Certificate of the Liverpool Shipwreck and Humane Society.



Mr. W. T. Baguley (left) with Mr. S. A. Scott

The certificate is a recognition of Mr. Baguley's bravery in saving two children from drowning on 2nd October.

Mr. Baguley plunged into a pond near his home at Delamere Park Camp and brought to the bank a small girl and a boy who was floating unconscious on the surface. When he brought them ashore, he and Mr. S. A. Scott administered artificial respiration to the children and revived them after ten minutes.

LIME DIVISION

Half a Century in First Aid

On 23rd November all Lime Division first-aiders in the Buxton area gathered at the Eagle Hotel for a dinner given by the Division board to Superintendent John Barker of the St. John Ambulance Brigade. Mr. F. C. Covill, who is vice-president of the Peak Dale Division of the Brigade, presented

Mr. Barker, on behalf of the Company, with a radio and a cheque in recognition of his invaluable work as Chief Ambulance Instructor to the Lime Division.

In 1897 John Barker, then a young man of 20, joined the St. John Ambulance Brigade and obtained the First Aid Certificate. He passed his examination yearly until 1947, when he retired from the Brigade with the rank of Superintendent.

In 1928 John Barker was appointed Chief Ambulance Instructor to the Lime Division, a post he held until 1949.

During his long career in first aid John Barker received many honours and awards: in 1906 he was at Windsor Park when the S.J.A.B. was inspected by King Edward VII; in 1927 he was admitted to the Grand Priory of the Order of St. John as a Serving Brother; and in 1928 he was presented by the Duke of Connaught with two medallions and the Certificate of the Order of St. John signed by H.M. King George V. In 1944 he received the long service award of the St. John Ambulance Brigade, although the award had, in fact, been due to him some years previously.

It was also in 1928 that Mr. Barker received a gold watch from the people of Dove Holes, his home village. As Mr. Covill said of him at the dinner: "In the days before the National Health Service and doctors with motor cars, John Barker was the doctor in Dove Holes."

METALS DIVISION

Publicity Chief Retires

Mr. H. O. Smaldon, head of the Public Relations Department of the Metals Division of Imperial Chemical Industries Ltd., retired at the end of last year. He began his connection with the Company in 1912, when he left the Heriot Watt College, Edinburgh, to join the staff at the Ardeer factory of Nobel Industries Ltd. in Ayrshire.

While he was working in the Research Laboratories at Ardeer there was a general reorganisation of the information services there, and Mr. Smaldon, who had developed a bent for literary work, became a specialist in abstracting, indexing and filing technical literature.

In 1928—two years after the formation of I.C.I.—when Elliott's Metal Co., British Copper Manufacturers Ltd., Allen Everitt Ltd. and other interests joined the Metals Group of the new company, Mr. Smaldon took over the Group's information services and advertising.

With the outbreak of war in 1939 he was transferred to other duties, including that of night manager of the Kynoch Works of I.C.I. at Witton, then employing some 17,000 people. A skeleton force was left to carry on the publicity and intelligence work. In 1945 he returned to publicity and the work of building up the Public Relations organisation as it now exists.

Mr. C. N. Sherwood, who succeeds Mr. Smaldon as head of the Metals Division Public Relations Department, has been with the department since 1947. During this time he has been in charge of Internal Relations. Mr. Sherwood has previously had considerable experience with the Metals Division's Export Sales organisation in London and Birmingham.

Mr. William Shakespeare

Famous names have been a feature of the long history of Elliott Works, but even Mr. Neville Chamberlain would accord pride of place to a gentleman called William Shakespeare who retired at the end of 1950. Mr. Shakespeare, a tackle

fitter, started work at Elliott's in 1900, and so has tidily completed exactly fifty years' service in the first half of the twentieth century.

A colleague writes: "He has an exemplary record for time-keeping and conscientious application to his work. No one can be expected to go on for ever, but a man with his name gives considerable tone to the place, and Mr. Shakespeare will be very much missed by his fellow workers."

Mr. E. A. Bolton (factory manager) presented him with an electric clock and a bedside lamp, together with an illuminated scroll, from his workmates. He expressed astonishment that, along with his fifty years of unremitting work, Mr. Shakespeare should have found time to write all those wonderful plays! Joking apart, Mr. Bolton expressed the thoughts of everyone present when he wished a long and happy retirement and a peaceful old age, both of which had been undoubtedly earned. Mr. Shakespeare responded with an expression of heartfelt thanks for the gifts and for the kindness of those around him.

Miss E. Middleton B.E.M.

Miss Emma Middleton (B Factory, Kynoch Works) was awarded the B.E.M. in the New Year Honours List.

Miss Middleton has been employed in the same department and on the same job—glazing paper cartridge cases—since she joined the Kynoch firm forty-five years ago. Every spare minute of that time she has spent in service to others. For many years a works councillor, she has also made a long and devoted contribution to the social side of life at Witton, and her attendance in various "backstage" roles is an accepted feature of leisure-time functions.

Even this list does not exhaust Miss Middleton's infinite capacity for doing good, for over the years she has organised charitable efforts bringing in many hundreds of pounds, largely as a result of her own personal work.

No one at Witton is regarded with more esteem and affection than this most generous of ladies, and the recognition of her lifetime's service has been greeted with widespread pleasure and pride.

NOBEL DIVISION

Ardeer Recreation Club Comes of Age

Ardeer Recreation Club, which was opened by Lord McGowan (then Sir Harry McGowan) on 7th December, 1929, celebrated its twenty-first birthday at a special gala dance and carnival on 29th December.

Dr. J. W. McDavid, C.B.E., chairman of Nobel Division, who is an honorary president of the club and who was for many years chairman of the club executive council, came to the dance and told members of the club's beginning, its growth and success.

The 21-year-old club is now an essential part of the social life in Ardeer and since its foundation has been of tremendous advantage in a district where recreational facilities for large numbers of people were scarce.

Before closing his speech Dr. McDavid read two messages received from Mr. John Rogers and Lord McGowan.

Mr. John Rogers' message said: "Please convey to all members of the Ardeer Recreation Club my congratulations on the club's attaining its majority and my best wishes for its continued success."

Lord McGowan's letter said: "Tonight I understand there is to be a function celebrating the twenty-first anniversary of the opening of Ardeer Recreation Club. I recall with mixed feelings the day that Lady McGowan and I officiated at the opening ceremony on 7th December, 1929, first with great pleasure at meeting so many of my old friends, and second the temerity I had in kicking off the ball at the football match on a field covered with mud, and I wondered if I would fall on my back. Fortunately I did not.

"In spirit I am with you tonight, and on laying down the reins of office as Chairman of the Company, the Board, as you know, have asked me to become Honorary President, which means I shall not be detached from our Company, and I hope that at frequent intervals I shall again be with you at Ardeer. Good luck, and God bless you all."

Dr. McDavid then ended his speech with the words: "May I express the sincere wish that the next twenty-one years will be as successful for the club as those which have just passed."

PAINTS DIVISION

Colour Film of Greece

During the war Mr. A. G. Ellis, a member of Paints Division colour advisory staff, was stationed in Greece with the Royal Corps of Signals. After being demobilised he spent two years with the British Embassy in Athens as director of the Information Centre.

Mr. Ellis fell in love with Greece, and last September he spent a three weeks' holiday there and took more than 2000 feet of film. The coloured part of the film was shown to the Slough Supervisor's Club at their meeting on 13th December.

The film was taken in various parts of Greece and showed a fascinating cross-section of Greek life, making an emphatic contrast between the simple existence of the up-country peasant, the hard-working Greek fisherman, and the cosmopolitan sophistication of the Athenian. During a visit to Mount Athos he got some beautiful shots of the monasteries, some of them perched on seemingly inaccessible cliffs. He visited the islands in the sturdy little island-built caiques. He filmed lovely Greek village girls dancing traditional dances in the almost perpetual Greek sunshine.

Mr. Ellis's well-informed commentary and the gramophone records he played of the tunes to which the girls danced when they appeared on the screen made the film as interesting as if it had had its own sound track.

Mr. Ellis is an authority on folk-dancing and music and has broadcast for the B.B.C. and Radio Athens. This is the first film he has made. His father, Mr. D. C. Ellis, is Trade Sales Control Manager, Paints Division.

PHARMACEUTICALS DIVISION

Technical Conference for Representatives

Delegates from eight European and Scandinavian territories, as well as the Pharmaceutical sales managers and medical and veterinary representatives from the Regional Sales Offices, attended the third Technical Conference, which was held at Harefield Hall, Wilmslow, from 11th to 15th December.

The Technical Conference—now an annual event in the I.C.(P) calendar—is organised by the Medical Department, though the Veterinary Department co-operate closely and the programme provides times for discussions on matters of

agricultural and veterinary interest. Principally, however, it remains a medical conference, its objects being to keep our representatives abreast of current developments and opinion, to explain the scope and progress of our research programme, to give guidance in broad terms on our future plans, and to provide information, some general, some particular, which will be of service to representatives in their daily discussions with the medical and veterinary professions.

This year Dr. L. B. Wevill, head of Medical Department, welcomed I.C.(P) delegates from Belgium, France, Holland, Norway, Denmark, Sweden, Finland and Eire. Approximately 60 people attended the lectures each day.

PLASTICS DIVISION

Sam Rockett and Cross-Channel Marathon

Sam Rockett, the Wandsworth foreman who gained fourth place for Britain in the *Daily Mail* international Channel-swimming race last August, winning a prize of £150, has been appointed training and technical adviser to the cross-Channel marathon which is being organised by the *Daily Mail* to mark the 1951 Festival of Britain.

Twenty of the world's foremost swimmers will take part in this race, and Sam Rockett's only regret is that his appointment will bar him from entry. He may, however, make a solo Channel bid, and this time he hopes to attempt the England to France crossing. Few swimmers have mastered the Channel in both directions, and we wish Mr. Rockett every success in his attempt.

'Luron' Angling Results for November

The £20 prize in the November Section of the 'Luron' Angling Competition was awarded to Mr. E. C. Wood of Croydon for a 3 lb. 12 oz. roach caught in the Thames at Shepperton. The second prize of £5 was won by Mr. G. F. Morgan of Camden Town for a 2 lb. 12 oz. roach taken from the much-fished Highgate Ponds.

THE REGIONS

Honour for Regional Manager

Mr. Victor Dunn Warren, who was created Knight Bachelor in the New Year Honours List, was elected Lord Provost of Glasgow in May 1949. Although he did not join the Company until April 1948, Mr. Warren has been Regional Manager of the Scotland and Northern Ireland Region of I.C.I. since 1st July, 1949.

Mr. Warren was an enthusiastic supporter of the Territorial Army for more than twenty years, reached the rank of Lieutenant-Colonel in the last war and was awarded the M.B.E. and T.D.

Northern Region Reorganisation

With effect on and from 1st January, 1951, Plastics and Leathercloth Department, Northern Region, will be divided into two separate departments, with Mr. J. R. Gammell as Regional Sales Manager, Plastics Department, and Mr. J. C. Spence as Regional Sales Manager, Leathercloth Department. Mr. E. L. Chadwick has been appointed Regional Personnel Manager.

Mr. Thomas C. Corbett

Mr. Thomas C. Corbett, Plastics and Leathercloth Sales Manager, Scotland and Northern Ireland Region, has been appointed Deputy Home Sales Control Manager of Plastics Division.

Mr. Corbett joined the Company in May 1945 and became Regional Sales Manager in September 1948. He has been honorary secretary of the Scottish Section of the Oil and Colour Chemists' Association since 1946 and chairman of the Scottish Section of the Plastics Institute.

His main relaxation is an interest in fast cars.

I.C.I. (CHINA) LTD.

Scots wha hae'

Our picture shows the chieftain of St. Andrew's Society, Shanghai, and his wife greeting the president of St. George's Society, Shanghai, and his wife on their arrival at a party given by the Scots on St. Andrew's Day.

Mr. W. A. Hogarth, the chieftain, is the Financial Director



of I.C.I. (China) Ltd., and Mr. Victor Farmer, president of St. George's, is chairman of I.C.I. (China) Ltd. It is extremely rare for two members of the same firm to be heading these two national societies.

At a bi-annual golf match between the societies St. George's recovered a trophy which has been fought over on the golf course for many years and which will again be played for next St. George's Day.

THE MARCH MAGAZINE

Our two main articles tell of the Company's activities at opposite ends of the world—Australia and Birmingham. The one sketches rapid development of the Australian chemical industry at the hands of I.C.I. of Australia and New Zealand. The other portrays in pictures what is probably the most highly mechanised layout in I.C.I. today—the copper and strip rolling mills at Witton, Birmingham.

Contrasting with this serious note Mr. Kevin Fitzgerald, who wrote so wittily in our August issue on the English in Ireland, gives us this time the other side of the picture—an impression of the Irish in England; Mr. J. N. T. Adcock of Paints Division gives practical advice to the housewife on interior decoration; and Dr. Traill of Ardeer draws on his wide learning to write on the oddities of textiles old and new, from those of the early Chinese emperors to the present day.

Bird Watching from my Window

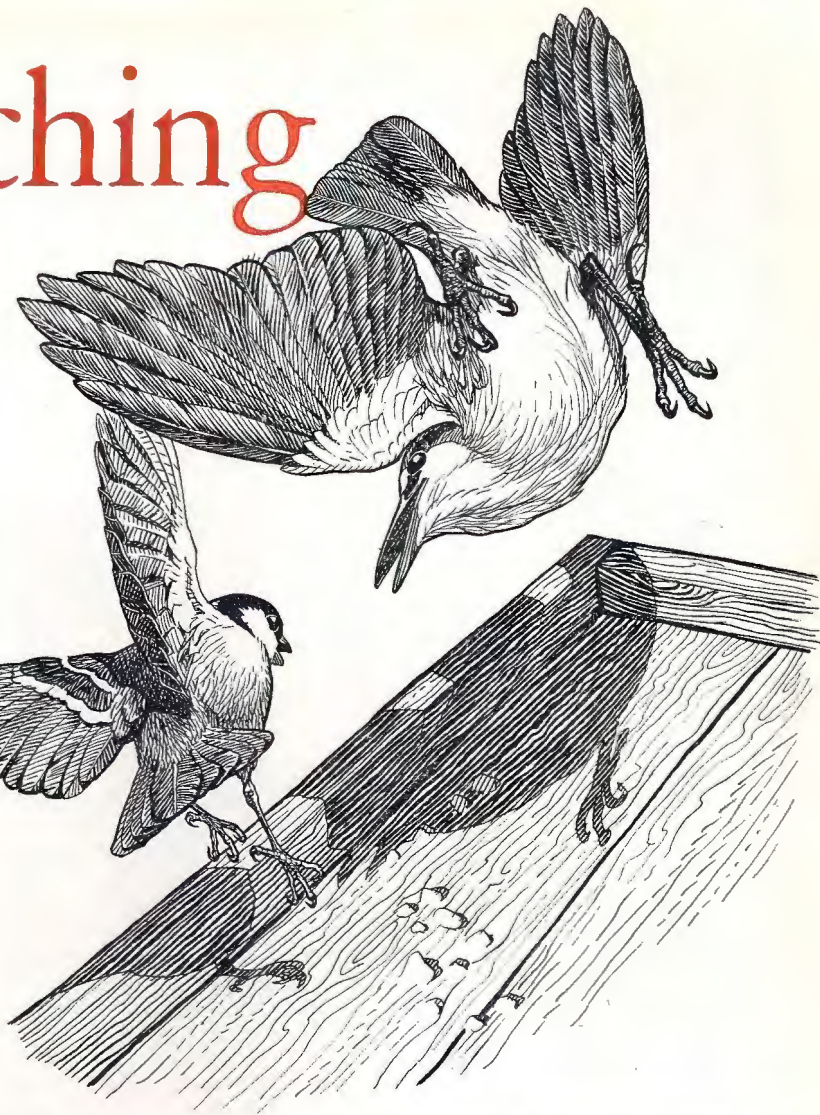
by J. M. Blackwood
(Southern Region)

Illustrated by Raymond Sheppard, R.I.

Ir first occurred to us to add a board to our window-sill one day in November, when we saw some chaffinches feeding there after a tablecloth had been shaken out. The window-sill is about twenty feet up, so it seemed a likely place to attract birds, especially as it was in a quiet corner of the grounds and completely inaccessible to cats. We were not disappointed. Curiously enough the chaffinches did not come back, but first a robin and then several bluetits paid us a visit.

Before long we added to the menu by fixing up half a coconut, which the bluetits quickly learned to feed off. We also erected another board lower down, about ten feet from the ground, outside a small round window from which it was easier to watch the birds without their seeing us. From here we could study their behaviour closely, and above all feast our eyes on their lovely colours. The chief colours of the bluetit are yellow, green and white, but there are splashes of beautiful deep blue on his head, wings and tail. By nature the bluetit is a chatterbox. Perched on the board, he used to squeak away to himself as to a neighbour, just like a mouse. Whoever thought of the classification "titmouse" for this bird and its like was certainly thinking of its noise as well as its size.

The great tit (or oxeye) visited the board next, rather timidly. At first he came only for scraps and did not try the coconut. He had considerable difficulty in getting even these to eat, for the bluetits used to chase him off. He would land on the board only after making quite sure that there was no other rival anywhere about. Even then he might get chased off by a bluetit before getting a single scrap. Nearness lends enchantment to the view of the oxeye. I realised for the first time how exquisite an olive-green is his back; and how fine a jet black are his head, neck, cheeks and the stripe down the middle of the chest which is peculiar to the cock bird. He is generally quieter than the bluetit, but can let out a vicious hiss when disturbed by another bird or thwarted of some



particularly choice morsel. He then looks most fierce, with mouth open, head lowered and wings outspread.

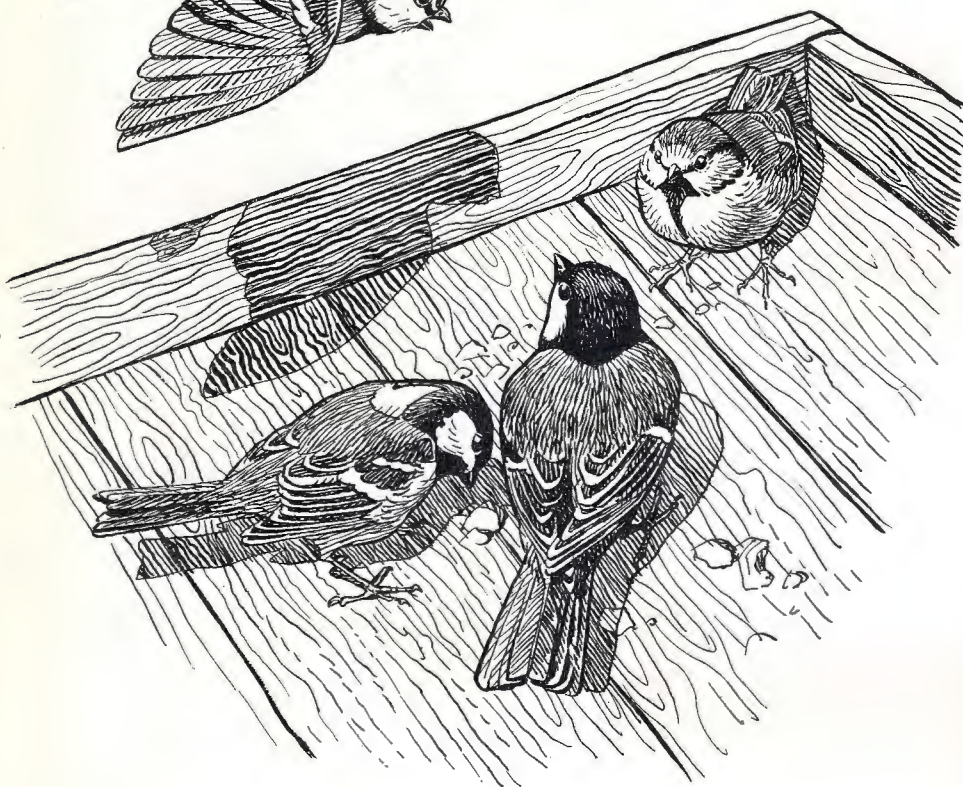
Our next visitor was the coal tit, who first appeared one frosty January morning. The bluetits instantly persecuted him, and if the morning had not been cold and the coal tit very hungry he would probably have made off. As it was he made a series of straight and resolute dashes, and on each occasion succeeded in snatching a piece of food (suet) for consumption in the trees. He would soon return for another piece, probably having dropped most of what he had already taken. A near view of the coal tit shows how very frail and small he is. The head and neck are rather too large for the body, but their handsome black sheen sets off well the blaze on the back of the head which is the "note" of this bird.

After the robins (singly), bluetits (plenty), great tits (three or four at a time) and coal tits (singly or in pairs), the only other visitor we had for a while was a missel thrush. He was very shy. After one look at the window he immediately flew off. Sparrows and starlings were always about, of course, but they never visited the boards. There were plenty of greenfinches, but they too never took the bird seed we put out for them. A tree creeper would sometimes remain for some minutes in the trees darting up the trunks, but he never broke his insectivorous habits to try our fare.

We were beginning to think that our party of visitors was complete until one sunny morning a pair of nuthatches turned up. Their pointed heads as often down as up, they inspected



*There was a Bluetit . . .
who tried to drive off the
other birds*



the bark of the trees, but showed so little interest in the board that we began to despair of getting a closer view of them.

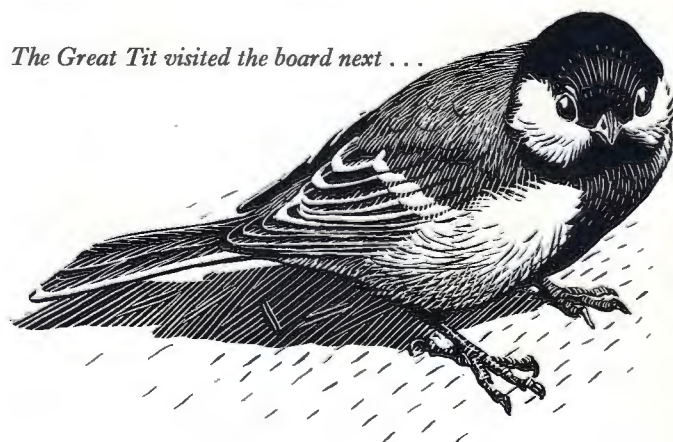
Then on Easter Sunday these unusual and rather mysterious birds made their first recorded visit. As I got up from the breakfast table to go to the side window to enjoy the sun, I had hardly made my habitual glance at the boards before I saw a rather heavy bluish bird coming straight on to the lower board. Without taking my eyes from it I called to the others to come to the window without fuss.

We watched him peck indifferently at the coconut and then, with much more decision, at the cracks of the board where I had put pieces of cheddar rind. These were jammed in quite hard, but the nuthatch was not to be denied, and he pickaxed away until he had got them all out. As soon as he had given up the search for more cheese and gone away, my wife opened the window and put out some fresh pieces of rind. She had hardly closed it again before, to our great relief, he came back. He quickly devoured the rind, or else took it away and hid it in the bark of the elm tree. This pair of nuthatches—for usually there were two—monopolised both boards for the rest of that day. After that they came regularly and only reduced their visits when they began nesting.

On the flat and unfamiliar surface of the boards the nuthatch, who is a climber, looks ungainly with his strong neck and short tail; but viewed from close range perched on the coconut or the brick edge of the round window he is a beautiful creature. The dark slate-blue of the neck, wings, back and tail; the large black streaks above the eyes; the long sharp-pointed beak—those are all well-known features. It is the brick-coloured edging to the buff under side and the large hindclaw which are the rewards of a close view. The white outer feathers of the tail are also more often visible when the creature is away from the trees. He seemed to us to make less noise than most of the other birds. We wished in fact that we could more often hear his gentle whistle. Our pair were obviously familiar with bird tables—once they had fed they were never very far away—and it may be we suborned them by generous cheese rations. We know anyhow that they first learned with us to like coconut, since the first indifferent peck gradually changed to avid and regular coconut feeding.

Relations between the visitors to the boards were quite good on the whole. When we first put food on the upper board there was a bluetit with a flat, grey, half-bared head—he got labelled “Cocky”—who tried to drive off the other birds, not only when they were at what he himself wanted but when they came to the board at all. He used to wait in the branches near by, and if any other bird flew even into the trees he would set about him immediately. We feared at one time that this menace would monopolise the board and drive off everything else. Cocky’s ability to conquer all before him almost made us despair, but we took heart when we saw the numbers of visiting birds increasing and when we noticed the agility of the other bluetits, who would skip out of his way when he went for them, and then return.

It seemed to us that from the first the bluetits had more persistence than the great tits, but anyway after a short time the number of new birds discovering the two boards were too much for Cocky—though occasionally he would go berserk



The Great Tit visited the board next . . .

and try to blitz everything off the boards, off the coconuts, off the fat, and off the neighbouring branches.

Bluetits and great tits were friendly enough, but sometimes a great tit would sulk if he lost his balance and got pushed off the fat or the coconut. The coal tit, of course, would usually leave immediately at the approach of another bird, although he could well have remained longer, judging by the small amount of trouble that the other species gave him. Before approaching the food the coal tit used to remain a long time in the nearest branches, turning his head this way and that; or he would hop timidly along the gutter above the boards six inches at a time before coming down to feed. He gives the impression of being afraid, or at any rate wary. He starts to feed as soon as he lands on the table or coconut as if his very life depended on the amount of food he could eat there and then—unlike the bluetit, who seems to have all the time in the world to get into the most comfortable or acrobatic position and is afraid of nobody.

The nuthatch is extremely pugnacious and will attack ferociously rivals on the board when these are near any morsel which he particularly covets himself, but he never made any attempt to monopolise the board or to attack persistently any of the others. His larger size naturally gives him an advantage in this respect. The chaffinch attitude is very much "live and let live," but the robin is sometimes aggressive to other birds and always to another robin. Robins and chaffinches, of course, do not take the fat or coconut, and are not, therefore, in much competition with the nuthatch and the tits.

I have tried to recount how interesting it has been to live with these birds. They are just outside the windows, and it is not as if they were stuffed or dead or tame or in an aviary; they are alive and wild and unaware that they are being watched even when we are only a few inches away. When they come near to the windows they behave as if they were still in the trees—except the robin, eyeing you, as he eats, with the vulgar familiarity of the village upstart. If I might venture a tentative generalisation, I might say our watching confirms how much birds are creatures of instinct. When we look at their eyes from a few inches away these appear to be largely of one colour, black, and dominated by fear or some other urgency such as hunger.

Sometimes they seem to show more than instinct. There is the acuteness with which a bluetit will pass from the upper side of a piece of fat, when displaced by a great tit, to the lower side, where it can cling and eat unseen. And I know one nuthatch which seems to show powers of reasoning. He was pickaxing at a piece of cheese in a crack in the board, and after a time he realised that this was being pushed through the board instead of being got out, whereupon he got round to the under side and knocked the cheese up through the crack. He succeeded in banging it clear and got round to the

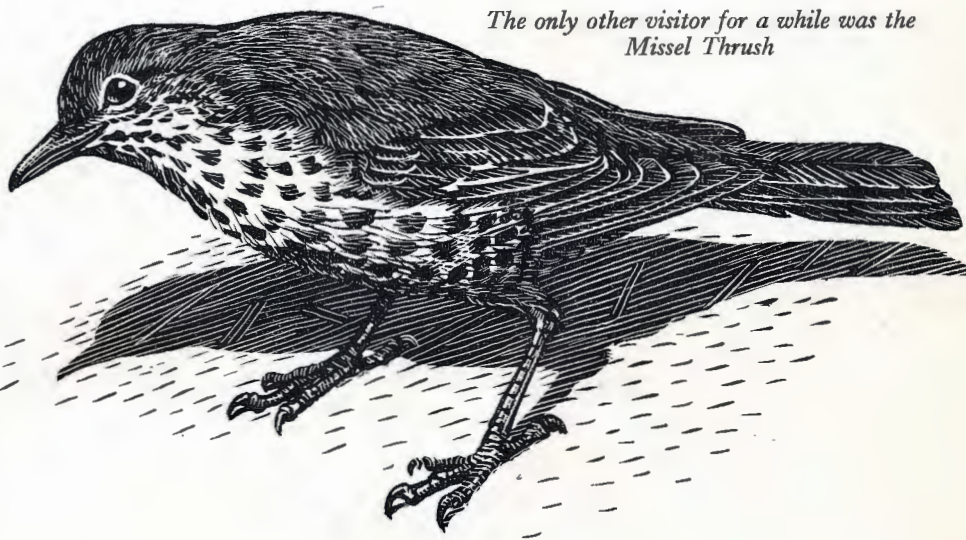


The Nuthatch pickaxed away until he got them all out

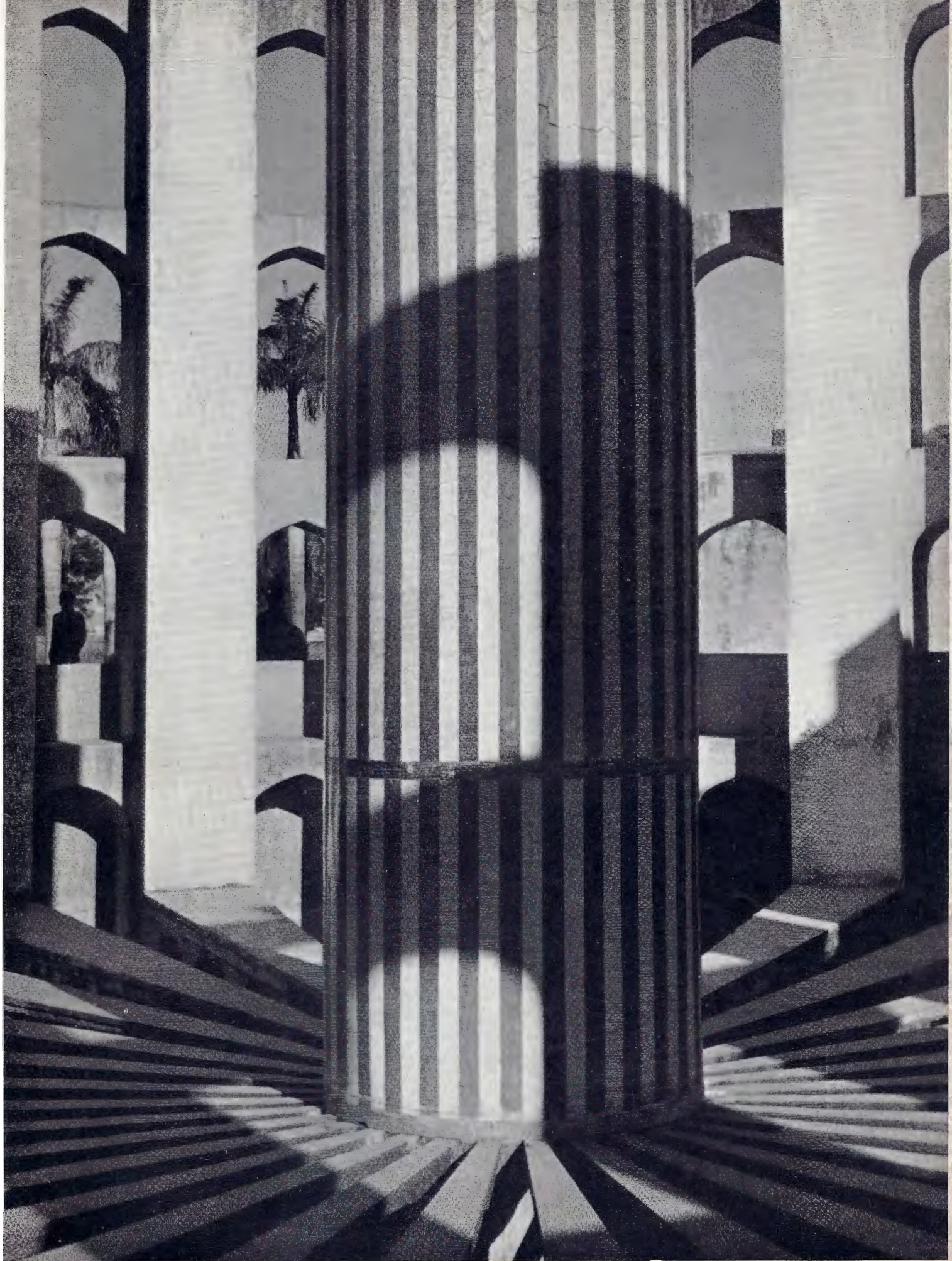
upper side again, where he was able to pick it up at his leisure.

Such feats as these are rare; but it is always pleasant to know that the birds are about, and to enjoy resounding in the house the sharp and urgent rat-tat-tat of the bluetit or great tit or the more leisurely staccato of the nuthatch. We might have had a great variety of birds visiting the boards if we had set out to attract them scientifically or if the winter had been severe, but we are glad of the interest we have had. For this we have to thank the ideal circumstances for the birds—the quietness at the back of the house, the protective cover of the surrounding trees, and above all the absolute cat-proofness of the high windows.

Watching "bluetittery" and "nuthatchery" is one of the best time-wasting devices ever. If you have a quiet corner not too far from the edge of the country you may care to try it. I don't think you'll be bored.



The only other visitor for a while was the Missel Thrush



Sundial in seventeenth-century observatory at Delhi

(Photo by B. R. Goodfellow)